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ABSTRACT

This article suggests that it is important to examine how constructivism-in-practice can flourish or flounder according to a variety of influences, noting the importance of outlining the challenges teachers face in understanding and implementing constructivism in classrooms. The article characterizes four major challenges faced by teachers in understanding, developing, and implementing instruction informed by constructivist principles. These challenges are as follows: (1) dealing with the complexity of constructivism as a philosophy, (2) preparing for the subject matter understanding and special pedagogical expertise that constructivist instruction demands, (3) re-envisioning the culture of the classroom, and (4) facing political challenges that arise when implementing constructivist instruction in school settings. The article suggests that articulating the challenges is a significant step in helping educators create and sustain a classroom culture that values diversity in learning and offers a new vision of the roles of teachers and learners. (Contains 37 references.) (SM)

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The Pedagogical, Cultural, and Political Challenges of
Creating a Constructivist Classroom

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The Pedagogical, Cultural and Political Challenges of Creating a Constructivist Classroom

Constructivist perspectives on learning have played an increasingly prominent role in educational discourse over the past twenty years. This emphasis has prompted efforts by educators to understand and implement constructivist practices in the classroom (Black & Ammon, 1992; O'Loughlin, 1992). Constructivism has been a siren's call to those who want to re-emphasize the primacy of the learner in the classroom and stress teaching for understanding. As seductive as the rhetoric is, however, the image of the constructivist classroom remains too idealized to be useful to teachers. For the conversation about constructivism to become relevant and realistic, it must situate itself in the culture of the classroom, and take into account the range of problems that face teachers who are willing to improve instruction and take risks in doing so.

Constructivism is a theory of how individuals learn, and the leap from learning theory to classroom practice has been a perilous one. The well-supported body of knowledge about how individuals learn has not been translated into a correspondingly coherent theory of instruction, although we are beginning to understand the general classroom conditions encourage the creation and restructuring of knowledge.

Teachers are not directly concerned with the translation of theories of learning into theories of instruction, but rather, with the equally formidable task of translating recommendations for instruction into actual classroom practice. When constructivism is used as the foundation for instruction, this task demands that educators not only be willing to learn about a complex idea, but also question their beliefs about learning, reexamine their roles as teachers and the role of students, and confront political dilemmas that arise as profound changes are enacted in the classroom.

Understanding this kind of progressive teaching is a knowledge-intensive, broad ranging endeavor involving reciprocity between communities of teachers and researchers. If research is to be meaningful to those who teach, it must address teachers' concerns and "mindframes" (Shavelson, 1988), acknowledging the realities they face and creating

knowledge from the inside out as well as the outside in (Lieberman, 1992). Darling-Hammond (1996) elaborated on this idea in outlining the central research questions for the contemporary reinvention of education:

Their answers rest in part, I believe, on our growing ability to produce knowledge for and with educators and policy makers in ways that provide a foundation for a more complex form of teaching practice, one that attends simultaneously to students and their diverse needs on one hand and to the demands of more challenging subject matter on the other. This kind of practice must manage the devilishly difficult dialectic between a set of common expectations for learning and a constructivist learning process through which students take different pathways to achieve these understandings (p. 8).

The call for researchers to contribute to the advance of teaching by recognizing and involving themselves in the concerns of the teacher's world, together with arguments that constructivism can actually help the cause of teaching and learning, support two premises for this article. The first is that constructivism will be a major influence in how we fashion the kind of learning experiences that will characterize progressive education. A second premise is that the emerging theories of constructivist instruction can evolve into more sophisticated and useful incarnations when informed by the knowledge of constructivism-in-practice-- which includes how teachers deal with the particular intellectual, pedagogical, cultural, and political challenges that are associated with the introduction of constructivism in schools.

Teachers, then, as the central figures both in classrooms and in reform, are prime candidates for examination of how constructivism-in-practice can flourish or flounder with regard to these influences. In this article I suggest that this examination begin with outlining the very real challenges that teachers face in understanding and implementing constructivism in classrooms. I characterize and categorize several major challenges faced by teachers in understanding, developing, and implementing instruction informed by

constructivist principles. These challenges include: 1) dealing with the complexity of constructivism as a philosophy, 2) preparing for the subject matter understanding and special pedagogical expertise that constructivist instruction demands, 3) re-envisioning the culture of the classroom, and, 4) facing political challenges that arise when implementing constructivist instruction in school settings.

I begin as a teacher must-- by trying to conceptualize what constructivism "is" and what it implies for the classroom.

The Complexity of Constructivism

Good teachers are interested in more than recipes for instruction; they want to know what principles underlie any instructional system and what this foundation implies for classroom practice. Constructivism, however, is not easy to grasp; understanding the "meaning" of constructivism includes examinations of psychology, epistemology, philosophy, and the history of education. What follows is a brief overview of these dimensions, intended to give a sense of the learning curve facing teachers who want to comprehend constructivism.

Constructivism is premised on the belief that learners actively create and restructure knowledge in highly individual ways, basing these fluid intellectual configurations on formal instructional experiences, bits and pieces of personal "theory", the social and cultural contexts in which ideas occur, and a host of other influences that serve to mediate understanding. Most constructivist principles are associated with psychology-- for example, that meaningful learning is rooted in and indexed by personal experience (Brown, Collins & Duguid, 1989), or, that learners possess inaccurate but persistent conceptions of how the world works and that these conceptions influence how they respond to formal instruction (Driver & Easley, 1978).

Related to the psychological principles is a set of epistemological assumptions. These assumptions suggest that the world does not harbor unambiguous "truths", independent of

human perception, that are "revealed" to us via instruction, but rather, that the world is knowable only through the interpretive interaction of the knower and the experienced phenomena. The psychological and epistemological roots of constructivism are appreciated more fully when they are framed against the antithetical but historically dominant position of objectivism and its influence on education.

The view that there is an external world, independent of human consciousness, which serves as a foundation for claims of truth has been variously labeled as objectivist, empirical, or rationalist (Willis, 1995). Related to this perspective is the conviction that language can be used as a precise, unambiguous, and neutral tool to describe the real world and effectively map knowledge from the minds of teachers to the minds of learners. Congruent with these claims have been the transmission models of instruction (also known as direct instruction, didacticism) in which lecture and demonstration are the preferred modes of "delivering knowledge" to learners. Psychological theories of learning, most notably behaviorism, have been consistent with these philosophies, and have been invoked in classroom settings with the hopes of making the learning processes more efficient (with success in many contexts). Behaviorist instructional philosophy suggests, in part, that knowledge and skills may be decomposed, the components removed from context, acquired separately through systematic reinforcement of target learning behaviors, and then resynthesized by the learner to reconstitute an understanding of a coherent whole (Duffy & Jonassen, 1992). From the epistemological perspective that the world is objectively "knowable" and the application of behaviorism in classrooms, we have the conditions for latter 20th-century traditional instruction.

But there is yet more for the teacher to grasp than the historical antecedents to constructivism and the notion that constructivism has both psychological and epistemological roots. There are many types of constructivism. A survey of literature relevant to educators seems to favor a rough bifurcation of constructivisms into cognitive and social varieties. The work of Jean Piaget has been foundational to theories associated

with cognitive constructivism-- the system of explanations of how learners, as individuals, impose intellectual structure on their worlds (Piaget, 1971). Social constructivism on the other hand, suggests that knowledge has both individual and social components, and that these cannot be viewed as separate in any meaningful way (Cobb, 1994; Saxe, 1992). People construct knowledge in the presence of others who collectively constrain the environment through the use of tools such as language, conventions such as pre-established concepts, and accepted practices for creating and judging knowledge. Many scholars refer to a useful synthesis of cognitive and social constructivist perspectives, claiming that knowledge is personally constructed and socially mediated (Tobin & Tippins, 1993).

Capitalizing on the ideas of how individuals learn in order to design effective instruction has been tenuous at best. There are some general guidelines for constructivist instruction, but it remains a pedagogical art to interpret these in according to the immediate subject matter, combine them as necessary, and tune the recommendations to the needs of the students. Some of the major ideas are that:

- teachers try to find out where students are intellectually before instruction then monitor how students are making sense of the subject matter during instruction,
- teachers provide students with early experiences relevant to the subject matter rather than starting with explanations,
- students have frequent opportunities to engage in problem or inquiry-based activities,
- the problems are meaningful to the student and not oversimplified or decontextualized,
- students work collaboratively and are encouraged to engage in dialogue, and
- students have various avenues to express what they know to their peers and to the teacher.

The background of constructivism is complex and confusing even to those who make it their business to study it. For the teacher, an exhaustive understanding of the breadth and depth of constructivism seems unnecessary. Teachers should be familiar, however, with its underpinnings so that they can be deliberate and flexible in applying its principles in the classroom.

Increased Demands on the Teacher:

Greater Content and Pedagogical Knowledge

Constructivist instruction, as a tool for progressive education, places special demands on the teacher. In his analysis of educational reforms, Cremin (1961) suggested that progressive pedagogy required "infinitely skilled teachers" who, unfortunately, were never prepared in sufficient numbers to effect change nationwide. Today's constructivist models of instruction appear to require just such high levels of skills from teachers.

Much of constructivist instruction is based on independent student activities such as problem-solving, inquiry, or design tasks. In these kinds of learning situations, the teacher must be familiar not only with the principles underlying a topic of study, but must be prepared for the variety of ways these principles can be explored by students.

For example, if students are studying density in science class, the teacher must support the understanding of one group of students who want to approach the concept from a purely abstract, mathematical perspective as they construct tables, equations, and graphs to develop their knowledge. In this case, the teacher must understand these different representations of information and how they are interrelated. Another group of students in the same class may plan to analyze the sinking of the Titanic, emphasizing the role that density played in the visibility of the iceberg, the ballast of the ship, and the sinking itself. The teacher must be intellectually facile, able to apply her/his mathematical understanding of density to a real-life, inevitably more complex situation.

Teachers in different subject areas may allow students varying degrees of latitude in exploring content, and will differ in how they accept student "constructions" of core curricular ideas. Mathematics is characterized by rule-based propositions and skills that students use to solve problems. However, many forms of mathematics problems, are not problems at all, but skill exercises in which students repeatedly invoke the same rules to answer highly-structured questions. Teachers with minimum content knowledge can rely on a daily regimen of prepared lectures and highly prescribed seatwork that maximizes the uniformity of student activity and minimizes the necessity for the teacher to have a flexible understanding of the material. However, when students are allowed to use these low-level skills in creative problem-solving activities, then there is no "right" answer, answers take on new qualities such as viability, creativity, elegance, or economy. These are qualities of solutions that are important to the world outside of school. The teacher must understand not only the component skills of the students' solutions, but understand the art of problem-solving, the standards by which success can be measured, and how to share these ideas with learners.

Science and social studies also have phenomena that present the same challenges although they are, respectively, less axiomatic, open to more degrees of interpretation. Dealing with the "correctness" of student constructions is an ongoing concern and the arguments have barely been introduced here, but reflection upon these issues help teachers develop a critical awareness of disciplinary "truths" and the viability of different ways of knowing the world.

In addition to the necessity for more flexible subject matter knowledge, constructivism places greater demands upon teachers' pedagogical skill. Robert Glaser (1990) has argued that pedagogy must evolve beyond conditions where there are minimal variations in the conditions for learning, a restricted range of instructional options, and a limited number of ways to succeed, to a more adaptive mode in which teaching is adjusted to the talents, backgrounds and interests of individuals and there is a wide range of opportunities for

success. This kind of teaching is more complex than the rote forms it replaces. It requires more flexible forms of pedagogy and methods for making student thinking explicit so that teachers can build upon it.

Educators struggle with how specific instructional techniques (e.g. lecture, discussion, cooperative learning, problem-based learning, inquiry learning) fit within the constructivist model of instruction. The question is not whether to use lecture or discussion, but how to use these techniques to complement rather than dominate student thinking. For example, constructivist principles suggest that students should experience the ideas, phenomena, and artifacts of a discipline before being exposed to explanations about them. Students might begin units of instruction in science class by manipulating a pendulum, in math class by constructing polygons, or, in social studies by reading letters from Civil War battlefields. Only after these experiences do teachers and students together suggest terminology, explanations and conceptual organization. Regardless of the specific techniques used in instruction, students will always construct and reorganize knowledge rather than simply assimilate information from teachers or textbooks. The question is whether they will construct robust ideas by being involved in meaningful activities or superficial ideas from a steady diet of passive, decontextualized experiences.

Even though designing instruction is important, constructivist teaching is less the sequencing of events and more the application of principles of responding to the needs of a situation (Lebow, 1993). Teachers must employ a range of sophisticated facilitative strategies to support individual students' understandings as they engage in the problem-based activities that characterize constructivist classrooms. These strategies include: scaffolding-- in which the task required of the learner is strategically reduced in complexity, modeling-- in which the teacher either thinks aloud about or acts out how she would approach a problem, and, coaching/guiding/advising-- which are loosely defined as providing prompts, probes, or suggestions to learners at varying degrees of explicitness (Choi & Hannafin, 1995). The apparently simple concept of "giving hints" becomes a

differentiated and elaborated mechanism in the constructivist classroom to help teachers better relate to the needs of the students. Scaffolding also has a more global interpretation for teacher-student interaction. In a study of expert teachers, Darling-Hammond, Ancess and Falk (1995) described how they scaffolded learning through successive conversations, steps and learning experiences that took students from their different starting points to a proficient performance--including opportunities for approximation and practice, debriefing and conversing, sharing work in progress, and continual revision.

Problem-based activities exemplify another core value of the constructivist culture--collaboration. Students are witness to and they participate in each other's intellectual activity. Learners are exposed to examples of the clear, cogent thinking of some peers as well as the inevitable meandering, unreflective thought of others. Students do require training to function effectively in these groups (Johnson, Johnson & Smith 1991), however, even with training, many capable students are patently disinterested in helping their peers, and negative consequences of group work such as bickering, exclusion, and academic freeloading are common (Slavin, 1995). These consequences can be minimized if the teacher is familiar with the principles of cooperative learning. And so, having students work together requires that the teacher have additional competencies in cooperative learning strategies and management skills particular to decentralized learning environments.

Another pedagogical challenge involves the independent nature of student work. Depending on the degree of structure that the teacher imposes in a classroom, students will have some latitude in choosing problems or design projects that relate to the theme under study. Often, students determine with the teacher suitable criteria for problems and the kinds of evidence they will provide that they have learned. Negotiation about criteria prompts questions such as: Is the problem meaningful? Important to the discipline? Complex enough? Does it relate to the theme under study? Does it require original thinking and interpretation or is it simply fact-finding? and, Will the resolution of this problem help us acquire the concepts and principles fundamental to the theme under study? Because

curricular materials are often filled with prepared questions and tasks, teachers seldom accompany their students to this level of "problems about problems." Clearly, teachers must develop a philosophy about worthy instructional problems by reflecting upon the nature of the discipline and refining their ideas through extended dialogue with colleagues and experiences with students.

The final pedagogical challenge concerns assessment. Constructivist instruction is intended to develop deep, multiperspectival understandings that may be highly contextualized and quite different in nature from student to student. This requires assessments that focus on the processes of learning, and that serve to link publicly-stated criteria of excellence to products created by students. These are not the paper-and-pencil objective tests in which learners recognize rather than generate answers, or create brief, fact-based responses to questions that they have little personal investment in. Rather, the teacher must be well-versed in assessment methods that involve student journals, research reports, creation of physical models, performances in the forms of plays, debates, dance and other artistic representations. These typically require well-designed, flexible rubrics for evaluation. Designing these rubrics with students makes explicit what is valued in the learning process and how evidentiary criteria are linked to these values.

Changing the Culture of the Classroom

Experiences consistent with constructivism include: problem-based learning, inquiry activities, opportunities for dialogue with peers and teachers that encourage "sense-making" of the subject matter, and, opportunities for students to demonstrate their understanding in diverse ways.

However, before teachers adopt such practices, they should understand that constructivism cannot make its appearance in the classroom as a set of isolated instructional methods, grafted onto otherwise traditional teaching techniques. Rather, it is a culture, a set of beliefs, norms and practices that constitute the fabric of school life. Belief systems can

be viewed as driving forces. Beliefs about learners, knowledge, or what an education is good for, are the cultural foundations upon which we create images, roles and relationships (Erickson, 1986; Lampert, 1990). This culture, like all other cultures, affects the way learners can interact with peers, relate to the teacher, and experience the subject matter. The child's relationship with teachers, their patterns of communication, how they are assessed and even their notion of "what learning is good for" must be made explicit and connected with one another or the culture risks becoming a fragmented collection of practices that fail to reinforce each other. For example, the constructivist belief that learners are capable of intellectual autonomy must coincide with the belief that students possess a large knowledge base of life experiences, and have already made sense out of much of what they have experienced. These beliefs are linked with the practice of problem-based learning using relevant and authentic contexts, and with the norms of mutual respect for one another's ideas in the classroom. By contrast, if discrete practices that have been associated with constructivism (cooperative learning, performance assessments, hands-on experiences) are simply inserted as novelties into the traditional classroom, then it remains business as usual for the students. Teachers and students do not question their vision of learning, no one is taking risks.

Portraying the constructivist classroom as a culture is important because many challenges for the teacher emerge when new rituals take root, or when familiar norms of behavior are transformed into new patterns of teacher-student interaction (Joseph, in press). Cobb and Yackel (1996) studied a group of first-graders who took it for granted that, when conversing with the teacher during mathematics class, they were to infer the answer that the teacher had in mind rather than articulate their own understandings. The teacher found that she had to renegotiate classroom social norms with students in order to free them from previous expectations and allow them to relate to her as young inquirers as well as interact in a more exploratory way with the subject matter.

The subversive act of creating alternative patterns of beliefs and practices is made especially difficult when one considers the predominant school culture it must usurp. In Goodlad's study of more than 1,000 classrooms (1984), he found an "extraordinary sameness" of learning environment featuring "bland, repetitive procedures of lecturing, questioning, monitoring, and quizzing" (p. 249). In The Ecology of School Renewal, Heckman further describes the prevailing conditions of American classrooms:

Most teachers talk most of the time; students sit, listen, do seatwork, and take tests. This occurs for approximately 85% of the 75% of the class time devoted to instruction. These findings approximate those reported in a study done at the turn of the century (1987, p. 70).

These limited vehicles of teaching and learning represent some of the most consistent and persistent phenomena known in the social and behavioral sciences (Sirotnik, 1983).

It is not difficult to infer that the dominant culture in schools is one of coping and compliance, where teachers control the intellectual activity to ensure uniform exposure to the curriculum and maintain discipline, and, students play the role of compliant, passive learners. Any deviation from this structure is recognized as a special event. These events, such as integrating class work with other subject areas or empowering teachers and students to make shared choices about the curriculum challenge accepted practices and hierarchies of power. They are experiments-- exceptions to the day-to-day business of schooling rather than the norm.

This prevailing culture is not necessarily unsystematic. Indeed, many teachers depend upon the regularities of curricula fashioned and organized by external intellectual authorities, inflexible models of instruction, and a narrow definition of learning. However, the culture remains stagnant because practices are never subject to critical public reflection on the roles of teachers and the needs of learners, nor is the culture based on a coherent set of values beyond those related to efficiency in maintaining the status quo. The culture's participants are fixated on short-term goals such as getting through a unit of instruction,

preventing disarray in the classroom, perhaps even "getting more kids involved", but these are not premised on deeper ideals that extend beyond the immediacy of the classroom walls or the three o'clock bell.

Teachers are the primary agent of change in schools, however, they must confront not only the status quo but also the inexorable influence of their own personal histories as learners. Most of us are products of traditional instruction. As learners, we were exposed to teacher-centered, direct instruction, fact-based subject matter, and drill and practice as reinforcement (Russell, 1993). Our past furnishes us with mental models of teaching -- and these models of how we were taught shape our behavior in powerful ways. Teachers use these models to imagine lessons in their classrooms, develop innovations, and plan for learning (Kennison, 1990). They are more likely to be guided not by instructional theories, but by the familiar images of what is "proper and possible" in classroom settings (Zeichner & Tabachnick, 1981; Russell, 1993).

Unfortunately, the signs and symbols of teacher-centered education and learning by transmission, which are a part of most teachers' personal histories, persist in classrooms today (Groisman, Shapiro & Willinsky, 1991). In this environment, it is assumed that the more quiet and orderly the classrooms are, the more likely it is that learning is taking place. Individual desks face the front of the room where the teacher occupies a privileged space of knowing authority; students work individually on identical, skill-based assignments to ensure uniformity of learning. Value statements are embedded everywhere in this environment.

In sum, for teachers to infuse constructivism into these kinds of classrooms, they must approach it as a cultural reorientation. Beliefs about learners and learning must be made explicit, new roles, norms, and rituals must take hold. Classroom practices must reinforce one another and permeate all aspects of the intellectual life of the student. This movement will not happen in a vacuum. Indeed, institutionalizing change begins with challenging the

existing culture-- and that brings us to the next set of dilemmas that teachers must deal with.

Political Challenges

Reconceptualizing the classroom as a constructivist culture is more than an exercise in efficient articulation of roles, beliefs, and practices-- it is a risk-taking venture with political implications. The term "political" refers to those aspects education that result in some consequence to the relationships between teachers, administrators, parents, and other stakeholders in the educational enterprise. I make the assumption that power and influence always play a role in these relationships.

Perhaps the most politically sensitive issue confronting teachers is that the diversity of student understandings emerging from constructivist instruction do not seem compatible with convergence on state and local standards. For example, student groups engaged in science projects on photosynthesis may have radically different approaches to developing their understanding of this phenomenon. One group may choose to focus on chemical reactions at the molecular level while another group may examine how oxygen and carbon dioxide are exchanged between animals and plants on a global scale. These two groups will take disconcertingly divergent paths to understanding photosynthesis. This kind of project-based learning must be skillfully orchestrated so that, however students choose to investigate and seek resolutions to problems, they will acquire an understanding of key principles and concepts as well as the critical thinking skills that are assessed on standardized tests. Proponents of project-based learning have demonstrated that these kinds of learning outcomes are entirely possible (Blumenfeld, Soloway, Marx, Krajcik, Guzdial, & Palinscar, 1991). Artful guidance by the teacher notwithstanding, it can be unsettling for teachers to reconcile the language of "objectives, standards, and benchmarks" with the diversity of understandings that emerge in a constructivist classroom.

Curiously, while many states are urging educators to teach to higher standards that seek greater understanding, the kind of teaching required to do this is actively discouraged by

local and state policies. These policies discourage teachers from spending time inquiring about their own practice and from adapting instruction to individual learners.

If constructivist instruction begins with what the student knows and is driven by the interactions between the student and the teacher, this suggests that there is a great deal of authority invested in the teacher to select and enact curriculum. Historically, policy makers have sought to control curriculum and standardize teaching rather than to educate teachers to make more sophisticated choices about their own curriculum and instruction. Granting teachers this kind of authority can face opposition from political conservatives who fear not only the teacher's autonomy in choosing content but also children's learning of critical thinking skills (Elliot, 1994). Such conservatives view teachers as technicians--called upon to implement classroom objectives that are tightly controlled and defined by others higher upon the administrative chain of command. Purpel and Shapiro (1995) argue that:

Such a role increasingly precludes the involvement of teachers from any real authority for decision making in the school. It robs them of the opportunity to think creatively about how they teach or what it is that should be taught. And it denies them the moral and political significance of what they do . . . The "deskilled" teacher is required to teach with little consciousness or conscience about the fundamental values that he or she is trying to initiate in the classroom (p. 109).

Politically, the classroom cannot remain a isolated domain. Administrators must be convinced that constructivism is a legitimate, if not powerful philosophy upon which to base teaching and learning. Administrators must be open to suggestions for block scheduling and integrating curriculum, perhaps even arranging for interested teachers to be placed together in team teaching situations that are premised on the constructivist approach. They must also take the lead in supporting a "less is more" curriculum approach. The compulsion to cover material is antithetical to the deep and elaborate understanding of selected core ideas-- the aim of constructivist instruction. Textbooks, which are often the de

facto curriculum, have become encyclopedic, and administrators should make teachers feel secure about weaning themselves from it and using a wider variety of resources for teaching.

Teachers and administrators must be prepared to go on record with the larger school community about why the beliefs and practices associated with constructivism are congruent with the community's vision of education. Personal philosophies of education are particularly important when based on constructivism-- important because effective constructivist practices means risk-taking and a divergence from business as usual. Educators should always have a rationale for their curriculum and how they teach; however, with constructivism being so contrary to historical norms, it is even more important that this rationale be well-founded, coherent, and applicable to the current school context. Community members will undoubtedly be suspicious of teaching methods that are so different from the ones they remember as students, and sounding too much like a *laissez faire* approach to learning. Teachers will be asked sooner or later, "Why do you teach that way?" Whatever form that question takes, teachers must be able to justify the choices they make. This task will not be as intimidating if the teacher has mindfully linked the aspects of her/his constructivist philosophy to the various dimensions of classroom experience and to the larger goals of education.

Constructivism, as an idea, suffers the same handicap as other progressive positions-- it is framed as a questionable alternative to what already exists. The status quo is privileged by descriptors such as "basic", "historic", "fundamental", even "real", while those who favor constructivism are faced with marginalizing descriptions of their approach as "alternative", "experimental", or, "faddish". If stakeholders in the educational community see constructivism as just another fad, then its legacy in educational history may only be another echo of John Dewey's original call for active, relevant, and reflective learning (1929), left unheeded for the third time this century. It may represent just another chance to

tinker around the edges of schooling rather than catalyzing the evolution of a widespread, robust culture of learning communities.

Conclusions

This article is generally intended to promote an expanded dialogue between teachers and researchers about constructivism-in-practice. It is specifically intended to stimulate conversation about the intellectual, pedagogical, cultural, and political conditions that define both the opportunities and the dilemmas for constructivist classroom teachers. The article has not been about solutions to these dilemmas but rather about a reciprocity between what teachers might share with researchers about the complex and sensitive environment in which constructivist instruction takes place, and how researchers can create a more authentic picture of constructivism-in-practice that will help guide teachers who are interested in reform.

When studying the learning process, researchers are careful to attend to "given" conditions about children that undoubtedly influence the way they construct knowledge. They pride themselves in embracing the complexity of the individual mind and trying to expand our understanding of how it works. To understand teaching, we must also consider the "given" conditions in the classroom. We should examine not only teacher characteristics, but just as importantly, the school culture and political milieu-- the things that, although not always a direct influence, profoundly affect learning in the long term. Finally, it is important to see how these conditions influence and are influenced by the teachers' attempts to integrate ideas like constructivism into the life of the classroom. Looking at schools or classrooms as a units of analysis is important. Classroom and school ethnographies that pay attention to the total environment will most likely provide us with the greatest insights into the contexts in which constructivist instruction can flourish.

Despite all of the attention that constructivism has received, it would be irresponsible to suggest that it can act as the fulcrum of educational reform. After all, it is merely a theory

that describes learning and suggests principles for instruction; it has only indirect implications for curriculum. From the roots of constructivism comes a system of values that have been difficult to locate within the sphere of human concern. It offers no social vision and no incentives for learners to participate in the community or in the larger culture outside of school. Learners are given the intellectual tools to think effectively and autonomously, but there are no sustaining moral or social visions that members carry with them from this kind of classroom culture. Its pedagogy would clearly be more transformative (of individuals and society) if it were inclusive of the complexities of privilege, race, class and gender (Rivera & Poplin, 1995). The intellectual autonomy championed by constructivism does not necessarily translate into community or shared vision of a better society. The constructivist culture is a means, but not an end.

In spite of its limitations, constructivist principles can be combined with democratic ideals, and a pluralistic approach to education to guide progressive reforms into the next century. Ann Brown (1994) characterized the successes of educational research over the last century as contributing to the advancement of learning. In closing this article I again quote Linda Darling-Hammond (1996), who has argued that the problem in the next century will be "the advancement of teaching."

...its resolution will depend on our ability to develop knowledge for a very different kind of teaching than what has been the norm for most of this century. If we want all students to actually learn in the way that new standards suggest and today's complex society demands, we will need to develop teaching that goes far beyond dispensing information, giving a test, and giving a grade. We need to understand how to teach in ways that respond to students' diverse approaches to learning, that are structured to take advantage of students' unique starting points, and that carefully scaffold work aimed at more proficient performances. We will also need to understand what schools must do to organize themselves to support such teaching and learning (p. 7).

This list of challenges described in this article is not exhaustive. There are certainly others, and the challenges outnumber the solutions at the moment. But articulating these challenges is a significant step in helping educators create and sustain a classroom culture that values diversity in learning and offers a new vision of the roles of teachers and learners--the culture of constructivism.

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